

# 802.11g Wireless LAN Card

**User's Manual** 

Doc. No.:120903-01

# **REGULATORY STATEMENTS**

## FCC Certification

The United States Federal Communication Commission (FCC) and the Canadian Department of Communications have established certain rules governing the use of electronic equipment.

#### Part15, Class B

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

- 1) This device may not cause harmful interface, and
- 2) This device must accept any interface received, including interface that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Dincrease the distance between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

#### CAUTION:

- To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.
- 2) This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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# **INTRODUCTION**

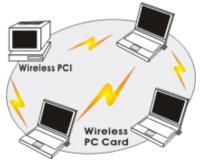
The **802.11g Wireless LAN Card** is a device that allows you connect your computer to a wireless local area network (LAN). A wireless LAN allows your system to use wireless Radio Frequency (RF) technology to transmit and receive data without having to physically attach to the network. The Wireless protocols that come with this product ensure data security and isolation from interference generated by other radio frequencies.

This card also allows you to take full advantage of your computer's mobility with access to real-time information and online services anytime and anywhere. In addition, this device eliminates the bother of pulling cable through walls and under furniture. It even allows you to place your system in locations where cabling is impossible. Modifying and augmenting networks has never been so easy.

## **Wireless Network Options**

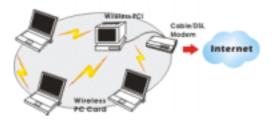
#### The Peer-to-Peer Network

This network installation lets you set a small wireless workgroup easily and quickly. Equipped with wireless PC Cards or wireless PCI, you can share files and printers between each PC and laptop.



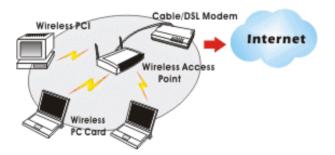
- 1 -

You can also use one computer as an Internet Server to connect to a wired global network and share files and information with other computers via a wireless LAN.



#### **The Access Point Network**

The network installation allows you to share files, printers, and Internet access much more conveniently. With Wireless LAN Cards, you can connect wireless LAN to a wired global network via an **Access Point**.



# LED Indicators For Wireless CardBus Card

#### Power Indicator: (Orange LED)

This LED will illuminate when the driver is well-installed.

#### Act Indicator: (Green LED)

This LED flickers when transmitting/receiving wireless data.

# **INSTALLATION**

Caution: Do not insert the Wireless LAN Card into your computer until the procedures in "Install the Driver & Utility" has been performed.

### **Install the Driver & Utility**

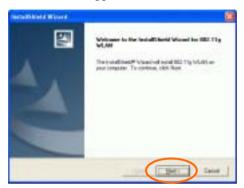
3. Exit all Windows programs. Insert the CD-ROM into the CD-ROM drive of your computer.

If the CD-ROM is not launched automatically, go to your CD-ROM drive (e.g. drive D) and double-click on **Setup.exe.** 

4. The main screen of the CD-ROM opens. Click **Driver & Utility Installation** to start the installation.



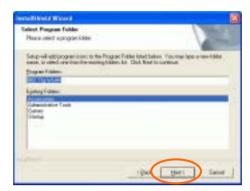
5. When the Welcome screen appears, click **Next** to continue.



6. The **Choose Destination Location** screen will show you the default destination chosen by the utility. Click **Next** to continue.

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Destination Folder C1882211g-VLAH	. Apres .
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7. Follow the instruction to select the program folder. Click **Next** to continue.



8. Click **Finish** to complete the installation

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	Test

## Install the device<sup>1</sup>

**Note**: Make sure the procedures in "**Install the Driver & Utility**" has been performed.

- 1. If you are using the Wireless PCI Card, before installing the device, make sure the computer is turned off. Remove the expansion slot cover from the computer. For Wireless CardBus users, please locate your CardBus slot.
- 2. Carefully slide the Wireless PCI/CardBus Card into the PCI/CardBus slot. Push evenly and slowly and ensure it is properly seated. For Wireless PCI Card, you may have to use the mounting screw to have the card screwed securely in place.
- 3. After the device has been connected to your computer, turn on your computer. Windows will detect the new hardware and then automatically copy all of the files needed for networking. Recover your expansion slot cover if you are using the Wireless PCI Card.

#### Note for Windows 98 users:

Before installation of the device, make sure you have your operating system CD-ROM at hand. You may be asked to insert the OS CD-ROM in order to download specific drivers.



<sup>&</sup>lt;sup>1</sup> If you are using the Wireless PCI Card, the product descriptions shown on the screen will differ from the illustrations shown in this document. Please discard the discrepancy and follow the installation procedures to continue anyway.

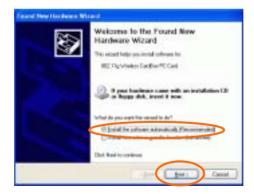
#### Note for Windows 2000 users:

During the installation, when the "Digital Signature Not Found" screen appears, click "Yes" to continue.



#### Note for Windows XP users:

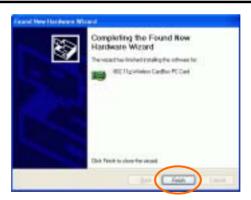
1. Select Install the software automatically (Recommended) and click Next.



#### 3. Click Continue Anyway.



#### 4. Click Finish to complete the installation.



#### **Verify Device Installation**

To verify that the device has been properly installed in your computer and is enabled, go to Start  $\rightarrow$  Settings  $\rightarrow$  Control Panel  $\rightarrow$  System ( $\rightarrow$  Hardware)  $\rightarrow$  Device Manager. Expand the Network adapters item. If

the **802.11g Wireless PCI/CardBus PC Card** is listed, it means that your device is properly installed and enabled.



# **NETWORK CONNECTION**

Once the driver has been installed, you will need to make adjustments to your network settings.

#### In Windows 98/ME

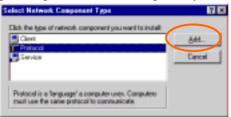
- 1. Go to Start  $\rightarrow$  Settings  $\rightarrow$  Control Panel  $\rightarrow$  Network.
- 2. Make sure that you have all the following components installed.

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Configuration Identification Access Control
The following petwork components are installed:
Clent for Microsoft Networks Microsoft Family Logan
R0211g Weeker CardBus PC Card
ag traophogin
3 <sup>™</sup> 109/JP > 802.11g Weeks: CardBut PC Card 3 <sup>™</sup> 109/JP > DialUp Adapter
а полно сласржара
Add. Remove Properties
Primary Network Logon:
Microsoft Family Logon
Elle and Print Sharing
- Description
2WLA934dapterFielpT ext%
OK Cancel

- 802.11g Wireless PCI / CardBus PC Card
- IPX/SPX-compatible Protocol
- NetBEUI
- TCP/IP

If any components are missing, click on the **Add** button to install them. All of the protocols and clients required (listed above) are provided by Microsoft.

3. Next, highlight the specific network component you need, click Add.



4. Highlight **Microsoft**, and then double click on the item you want to add. Click **OK**.

Select Network Protocol	8
3 Click the Network P	hatocal that you want to install, then click. DE: If you have a this device, click Have Disk.
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After returning to the Network screen, you can make your computer is visible on the network by enabling the **File and Print Sharing**.

5. Click the **Identification** tab. Enter a name that is unique on the network. Type the name of your workgroup, which should be the same name used by all of the other PCs on the network.

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Configuration I der Millio Mice Control
Vindow sees the tokuning information to identify your computer on the network. Please type a name for the computer, the work gough that agence in, and a that description of the computer.
Computer mane:
Wafarwer
Coggule Devoiption
OK. Cared

6. Click the Access Control tab. Make sure that "Share-level access control" is selected. If connecting to a Netware server, share level can be set to "User-level access control."

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Configuration Identification Access Control
Control access to shared resources using Chose level access carried Endles you to supply a posmeral for each shared resource. Classifier access control Endles you to supply access and proper who have access is each alreadimentation. Obtained of series and groups have
OK. Cancel

7. When finished, restart your computer to activate the new device.

System S	iettings Change	
٢	You must restart your computer before the new settings will take	*
	Do you need to under your computer new?	

- 8. Once the computer has been rebooted, a **Logon** window will appear and will require you to enter a username and password. Enter a username and password and click **OK**. Do not click the **Cancel** button, or you won't be able to log onto the network.
- 9. Double-click the **Network Neighborhood** icon on the windows desktop, and you should see the names of the other PCs on the network.

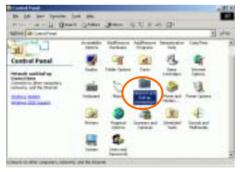
## In Windows 2000/XP

1. (In Windows 2000)

Go to Start  $\rightarrow$  Settings  $\rightarrow$  Control Panel  $\rightarrow$  Network and Dial-up Connections  $\rightarrow$  Local Area Connection  $\rightarrow$  Properties.

 $(In \ Windows \ XP)$ 

Go to Start  $\rightarrow$  Control Panel  $\rightarrow$  Network Connections  $\rightarrow$  Wireless Network Connection Enabled 802.11g Wireless PCI/CardBus PC Card  $\rightarrow$  Properties.



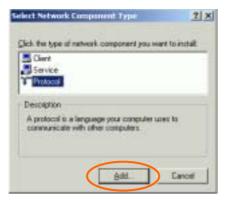
- 14 -

🕂 Wireless Network Connection 20 Properties 👘 💽 🔀
General Advanced
Connect using
802.11g Wreless CardBus PC Card
Çonfigure
This ognnection uses the following items:
Description Allows your computer to access resources on a Microsoft network.
OK Cancel

- 2. Make sure that you have all the following components installed.
  - Client for Microsoft Networks
  - NWLink NetBIOS
  - NWLink IPX/SPX/NetBIOS Compatible Transport Protocol
  - Internet Protocol (TCP/IP)

If any components are missing, click on the **Install...** button to select the **Client/Service/Protocol** required.

3. After selecting the component you need, click Add... to install.



4. Select the network protocol you wish to add and click **OK**. This will return you to the **Local Area Connections Properties** window.

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- 5. To allow your computer to be visible on the network, make sure you have checked off the **File and Printer Sharing for Microsoft Networks**.
- 6. When finished, you must restart your computer to complete the installation.

# CONFIGURATION

After successful installation of the Wireless LAN Card's driver, a **Network Status** icon will display in the task bar. You will be able to access the Configuration Utility through the Network Status icon.



If the icon doesn't appear automatically, go to Start  $\rightarrow$  Programs  $\rightarrow$  802.11g WLAN  $\rightarrow$  802.11g WLAN Utility, it will appear in the task bar.



## The Network Status Icon

The **Network Status Icon** will display on the task bar of your desktop and show the current network connection status of your system.

Icon	Link Status
0	Connected to network
0	Connecting
<b>~</b>	Driver not loaded
<b>@</b>	Disconnected from network

# Accessing the Configuration Utility

The Configuration Utility is accessed by clicking on the **Network Status Icon**.

All settings are categorized into 5 Tabs:

Main Tab

**Advanced Tab** 

**Privacy Tab** 

**Statistics Tab** 

About Tab

# Main Tab

The Main tab displays the current status of the Wireless Network Adapter.

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Item	Description
External	To Enable or Disable the manufacturer's configuration
Configuration	utility:
	Enable : Check this item to use Windows XP build-in

Item	Description
	utility or other manufacturers', such as Funk, Odyssey client utility. <b>Disable</b> : Left this item unchecked to use the utility we provide.XP's built-in utility
Status	Displays the information about the status of the communication.
SSID	The <b>SSID</b> is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting to connect to the same network. No WEP key With WEP key For TI-Based WLAN devices For TI-Based WLAN devices with WEP key
Mode	Displays the type of Basic Service Set, Access Point or Peer to Peer.
Ch	Displays the channel that is currently in use.
Signal	Displays the signal strength of the connection between the Wireless Network Adapter and the Access Point it connects to.
BBS ID	A set of wireless stations is referred to as a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.

#### **Current Configuration**

Pref. SSID	It shows the current SSID setting of the	
I Iel. BBID	6	
	Wireless Network Adapter.	
BSS Type	Displays the type of Basic Service Set,	
	Access Point or Peer to Peer.	
Channel	Shows the selected channel that is currently	
	used. (There are 14 channels available,	
	depends on the country.)	
Tx Rate	Shows the current transfer rate.	
Signal Quality	Displays the signal strength of the connection	
	between the Wireless Network Adapter and	
	the Access Point it connects.	

BSSID	the BSSID of the Access Point to which the
	card is associated

Connect	Highlight one of the device from the list area
	and press the Connect button to access it.
Modify	There will be three tabs for you to modify, see
	the detailed information on page 21.
Rescan	Searches for all available networks. Clicking
	on the button, the device will start to rescan
	and list all available sites.

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Preferred SSID	Type in the SSID name of the device you want to connect.	
BSS Type	You can select <b>Peer-to-Peer</b> , <b>Access Point</b> or <b>Auto Mode</b> of the device you to connect.	
Tx Rate	You can select the data rate or set to auto mode from the pull-down menu.	
Channel	Select the channel depends on your country.	
Power Mode	active mode. Max Power Save : Select this function, the power save mode will be	
IDCC	enabled.	
1055	The 802.11g standard includes a protection mechanism to	

protection	ensure mixed 802.11b and 802.11g operation. If there is no such kind of mechanism exists, the two kinds of standards may mutually interfere and decrease network's performance. <b>NONE</b> : if you select this item , then there will be no any protection provided. <b>CTS only</b> : Used only in the co-existing environment of 802.11b and 802.11g protection mechanism.
4x Config	Select to disable or enable the <b>TI-Based</b> 4x function.
Mode	You can select <b>IEEE 802.11b(B-Only)</b> , <b>802.11b</b> +( <b>B-Plus</b> ), <b>802.11g</b> ( <b>G-Only</b> )standard or <b>B&amp;G</b> Mode (If you choose this option the device will automatically convert the suitable standard ).
Profile	Enter the profile name and click the <b>Save</b> button to save your configuration, To open the profiles you saved, select the profile from the pull-down menu and then click the <b>Load</b> button. To delete the profiles you saved, select the profile from the pull-down menu and then click the <b>Delete</b> button.
Tx Power Level	Transmit power level, includes Low Power, Medium-Low Power, Medium Power, Medium-High Power, High Power

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Fragment Threshold	To fragment MSDU or MMPDU into small sizes of
	frames for increasing the reliability of frame (The
	maximum value of 4096 means no fragmentation is
	needed) transmission. The performance will be
	decreased as well, thus a noisy environment is
	recommended.
RTS Threshold	This value should remain at its default setting of
	4096. Should you encounter inconsistent data
	flow, only minor modifications of this value are
	recommended.
Preamble	A preamble is a signal used in wireless environment
	to synchronize the transmitting timing including
	Synchronization and Start frame delimiter. (Note: If
	you want to change the Preamble type into Long or
	Short, please check the setting of AP.)
Authentication	The authentication type defines configuration
	options for the sharing of wireless networks to
	verify identity and access privileges of roaming
	wireless network cards.
	You may choose between <b>Open System</b> , <b>Shared</b>
	Key, and Auto Switch.
	<b>Open System:</b> If the Access Point is using " <b>Open</b>
	System" authentication, then the wireless adapter
	will need to be set to the same authentication type.
	Shared Key: Shared Key is when both the sender
	and the recipient share a secret key.
	Auto Switch: Select Auto Switch for the adapter to
	select the Authentication type automatically
	depending on the Access Point Authentication type.
Dot my limita	You can set the number of retries if no
Retry limits	acknowledgement appears from the receiving
	station.
Antennas	To set the type of the antenna
	<b>Tx Antenna</b> : Antenna2 (Use the factory default)
000.11	<b>RX Antenna</b> : Both (Use the factory default)
802.11g version	This section is enabled only with <b>G-Only</b>
	Mode

## **Advanced Tab**

The **Advanced** tab displays the current status of the Wireless Network Adapter.

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# **Privacy Tab**

Use the **Privacy** Tab to configure your WEP and CCX settings. **WEP** (Wired Equivalent Privacy) and CCX (Cisco Compatible Extension) encryption can be used to ensure the security of your wireless network.

If you left **External Configuration** unchecked in the Main tab(see page 9), functions in the following figure will be enabled.

Prints	Distant	T Ende Haat Hole	
	HEX.		$\mathcal{I}$
WEP	The states second or Automatical	Can Salter	
m	Security Type	599	

If you checked External Configuration in the Main tab(see page 10),

functions in the following figure will be disabled.

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Privacy Mode	Configure your NONE • WEP or CCX settings :			
	<b>NONE</b> : No security defined.			
	WEP (Wired Equivalent Privacy) is a data			
	security mechanism based on a 40 Bit/128 Bit/256			
	Bit shared key algorithm. Press the Select button to			
	change WEP configuration. A new dialog window			
	will be opened(see page 26)			
	CCX (Cisco Compatible Extension). I			
	provides user-based, centralized authentication, as			
	well as per-user wired equivalent privacy (WEP)			
	session keys. Press the Select button to change			
	CCX configuration. A new dialog window will be			
	opened. (see page 27)			

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4	46.	

## WEP Configuration

<b>Encryption 1-4</b>	To configure your WEP settings. WEP (Wired		
	Equivalent Privacy) encryption can be used to		
	ensure the security of your wireless network. Select		
	one Key and Key Size then fill in the appropriate		
	value/phrase in Encryption field. Note: You must		
	use the same Key and Encryption settings for the		
	both sides of the wireless network to connect		
	<b>KEY1</b> ~ <b>KEY 4</b> : You can specify up to 4 different		
	keys to decrypt wireless data. Select the Default		

	key setting from the radio button.
	<b>Encryption :</b> This setting is the configuration key used in accessing the wireless network via WEP encryption.
	A key of <b>10</b> hexadecimal characters (0-9, A-F) is required if a <b>64-bit Key Length</b> was selected.
	A key of <b>26</b> hexadecimal characters (0-9, A-F) is required if a <b>128-bit Key Length</b> was selected.
	A key of <b>58</b> hexadecimal characters (0-9, A-F) is required if a <b>256-bit Key Length</b> was selected.
Key size	40 Bit, 128 Bit or 256 Bit.

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#### **CCX Configuration**

Network Type	Security	<b>None</b> – Choosing it will enable the <b>WEP Select</b> button. As described in Page 26.
		<b>LEAP</b> – Choosing it will enable the LEAP security.
		<b>External</b> – Select this item to use the external CCX configuration utility.

#### LEAP User

Network administers have been taking advantage of the simplified user and security administration that **LEAP** provides.

Before the security authentication is started, you should enter the user

name and password or the authentication process will fail.

## **Statistics Tab**

The **Statistics** Tab displays the available statistic information including **Receive packets, Transmit packets, Association reject packets, Association timeout packets, Authentication reject packets, Authentication timeout packets**.

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# **About Tab**

Click on the **About** tab to view basic version information about the **OS Version**, **Utility Version**, **Driver Version**, **Firmware Version** and **EEPROM Version**.

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# UNINSTALLATION

In case you need to uninstall the Utility and driver, please refer to below

steps. (As you uninstall the utility, the driver will be uninstalled as well.)

1. Go to Start → Programs → 802.11g WLAN → Uninstall 802.11g WLAN Utility.



2. Click **OK** to continue.



3. Select **Yes**, **I** want to restart my computer now, and then click **Finish** to complete the uninstalled procedure.

